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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,935	08/21/2001	Shunpei Yamazaki	740756-2351	5354

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EXAMINER
SIMKOVIC, VIKTOR

ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/932,935	Applicant(s) YAMAZAKI ET AL.	
	Examiner Viktor Simkovic	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *09/635,422* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,4,7,10,13,16,19,22 are provisionally rejected under the judicially created doctrine of double patenting over claims 12,22,26 of copending Application No. 09/942,922, claims 25-30 of copending Application No. 09/842,797, and claims 23,27,31,35,39 of copending Application No. 09/774,637. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: all the specified claims seem directed to the method of crystallizing amorphous silicon using a YVO_4 laser.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other

copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 37 recites the limitation "the harmonic of the YVO_4 laser" in the second to last line. There is insufficient antecedent basis for this limitation in the claim. This claim will be interpreted as being identical in scope to claim 25.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-9, 11-24 are rejected under 35 U.S.C. 102(a) as being anticipated by Helen et al. Helen et al. teach the method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film on an insulating substrate;

crystallizing the film semiconductor film by irradiation of a harmonic of a YVO_4 laser;

patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and

forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

See the section "Experimental Details" of the reference. Note that the wavelength used is 532 nm, which is the 2nd harmonic of a YVO_4 laser. With regard to claims 7 and 19, Helen et al. describe scanning the laser across the substrate, which implies the use of a linear laser light. With regard to claims 13 and 19, the examiner maintains that it makes no difference whether the patterning is performed before or after the irradiation. In general, the transposition of process steps, where the processes are substantially equivalent or identical in terms of function, manner and result, was held to not patentably distinguish the processes. *Ex parte Rubin* 128 USPQ 440 (PTO BsPatApp 1959). With regard to the dependent claims, Helen et al. teach depositing an amorphous film and using a 2nd harmonic of the YVO_4 laser.

Claims 34 and 37 are rejected under 35 U.S.C. 102(a) as being anticipated by Helen et al. Yoon. Yoon teaches the method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film on an insulating substrate;

crystallizing the film semiconductor film by irradiation of a harmonic a solid laser comprising Nd;

patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and

forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

See column 5, lines 7-15 as well as Figs. 4 and 5.

Regarding claims 35-36 and 38-39, Yoon teaches that the film is amorphous and that the harmonic is one of second, third, or fourth.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 40, 43, as well as 41-42, and 44-45 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon.

While Yoon does not teach forming an insulating layer of either oxide or nitride prior to the formation of the silicon layer or providing a crystallization promoting material, these are well established technique in the art and official notice is taken. It would have been obvious to one of ordinary skill in the art at the time of the invention to include these steps for that reason. Regarding claims 41-42 and 44-45 as stated above, Yoon teaches an amorphous film and using the specified harmonics.

Claims 4,10 rejected under 35 U.S.C. 103(a) as being unpatentable over Helen et al. in view of Owa et al. While Helen et al. use a pulsed laser, the use of a continuous YVO_4 laser is taught by Owa et al., (column 5, line 44). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a CW laser as taught by Owa et al., for as is well known in the art, this provides a more uniform melting front in the film.

Response to Arguments

Applicant has argued that the "As shown by the attached, the publication of Helen is not earlier than December 5-8, 1999, while the subject application claims priority to September 3, 1999." The examiner could not locate any attached documents. As far as the examiner could determine, the publication of the Helen reference is 9/99, as evidenced in the lower left corner of the article. Thus, this rejection stands.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viktor Simkovic whose telephone number is 703-308-6170. The examiner can normally be reached on Mon - Fri, 9:00 - 6:00, except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Viktor Simkovic
April 9, 2003

John F. Niebling
Supervisory Patent Examiner
Technology Center 2800